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| 10/710,895 | 08/11/2004 | Boris A. Movchan | 13DV-13975-4 | 4894 |
| 30/952 | 7590 | 12/10/2010 | | |
| HARTMAN AND HARTMAN, P.C. 552 EAST 700 NORTH VALPARAISO, IN 46383 | | | | |
| EXAMINER | | | | |
| VETTER, ROBERT A | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1712 | | | | |
| NOTIFICATION DATE | | DELIVERY MODE | | |
| 12/10/2010 | | ELECTRONIC | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/710,895

Applicant(s)

MOVCHAN ET AL.

Examiner

ROBERT VETERE

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-14, 18, 20 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-14, 18, 20 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Examiner's Comments

An amendment, adding new claim 26, was received and entered on 9/14/10.

Response to Arguments

1. Applicant's arguments filed 9/14/10 have been fully considered but they are not persuasive.

Applicant first argues that Allen fails to disclose an open porosity. Applicant further argues that the specification defines the term open porosity as porosity that allows gas to permeate a coating. This is not persuasive. Allen expressly teaches that the thermal barrier has pores (8:26-38). Furthermore, the specification fails to explicitly define the term "open porosity" as porosity that allows gas to permeate a coating. Though understanding the claim language may be aided by explanations contained in the written description, it is important not to import into a claim limitations that are not part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment. MPEP § 2111.01.

Applicant next argues that Allen teaches away from the use of binary compositions with stabilizers because such compositions promote aging. This is not persuasive. While Allen does teach that binary compositions with stabilizers can should be limited to lower temperature applications (3:32-39), this does not teach away from their use. A prior art reference that "teaches away" from the claimed invention is a significant factor to be considered in determining obviousness; however, "the nature of the teaching is highly relevant and must be weighed in substance. A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." MPEP § 2145 (X)(D)(1).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 11, 14, 18, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen et al. (US 6,835,465) in light of Ioki et al. (US 5,390,217).

Claim 11: Allen teaches a process of producing a thermal barrier layer comprising: forming the thermal barrier coating at an elevated temperature (e.g. via flame spraying, EB-PVD, etc) by co-evaporating carbon and a thermal-insulating material to deposit elemental carbon in pores (i.e. that are within grains and at and between grain boundaries of the thermal insulating material, the pores establishing an open porosity within the thermal barrier coating (9:1-21, 44-57; 10:56-60); and volatilizing the graphite (i.e. producing a carbon-containing gas from the elemental carbon) by heat treating (claimed sintering) the graphite to thereby modify the pores (8:53-9:6, 44-57). While Allen fails to expressly state that the gas is trapped within the pores, it is inherent that this occurs in the method of Allen because Allen teaches the same process steps using the same materials (see, e.g., 4:22-40) as those described in applicant's specification. Since Allen teaches substantially the same processing steps as Applicants, the pores containing the carbon-containing gas are inherently resistant to sintering, grain coarsening, and pore redistribution.

Allen, however, teaches that the graphite is volatilized at 450°C (8:53-9:6). Ioki teaches that graphite can be partially sublimated (i.e. volatilized) at temperatures around 2800°C (2:6-18). In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art a prima facie case of obviousness exists. Also, a range can be disclosed in multiple prior art references instead of in a single prior art reference depending on the specific facts of the case. MPEP § 2144.05(I). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected a temperature of between 950°C and 2800°C as the temperature used to volatilize the graphite with the predictable expectation of success in the method of Allen.

Claim 14: Allen teaches an open porosity in the thermal barrier coating that constitutes at least 25 volume percent of the thermal barrier coating (col. 9, lines 44-46).

Claim 18: Allen also teaches that the sinter step forms additional pores (9:1-6).

Claim 20: Allen also teaches that the thermal insulating material is zirconia stabilized with yttria (3:16-39) and that the coating comprises columnar grains (4:46-49).

Claim 26: Allen also teaches that binary compositions with stabilizers can be used as the thermal barrier coating (3:15-39).

5. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen and Ioki as applied to claim 11 above, in view of Alperine et al. (US 6,312,832 B1).

Allen teaches depositing a thermal barrier coating by electron beam vapor deposition during which a thermal-insulating material and a carbon-containing (graphite material as per claim 13) material are simultaneously evaporated (9:1-21; 10:56-60). Although Allen does not expressly state the precursor materials were in the form of ingots, it was well known in the art at the time of the invention to utilize source materials in the form of ingots for evaporation in EB-PVD processes (see Alperine as evidence at 4:42-51).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT VETERE whose telephone number is (571)270-1864. The examiner can normally be reached on Mon-Fri 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Vetere/
Examiner, Art Unit 1712

/David Turocy/
Primary Examiner, Art Unit 1715